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Teaching, Research and Engagement: Strengthening the Knowledge Triangle

Ellen Hazelkorn
Technological University Dublin, ellen.hazelkorn@tudublin.ie

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Teaching, Research and Engagement: Strengthening the Knowledge Triangle

Professor Ellen Hazelkorn

Vice President, Research and Enterprise, and Dean of the Graduate Research School

Head, Higher Education Policy Research Unit,

Dublin Institute of Technology, Ireland

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For the first time, a really international world of learning, highly competitive, is emerging. If you want to get into that orbit, you have to do so on merit. You cannot rely on politics or anything else. . . (Burton Clark, 1995)

'Europe needs universities able to build on their own strengths and differentiate their activities on the basis of these strengths.' (EU, *Delivering On the Modernisation Agenda for Universities: Education, Research and Innovation,* 2006.)

'The distribution of institutions is not necessarily structured to meet the challenge of balanced regional development in a highly competitive global economy.' (OECD, 2007, 37)

'The challenge new universities is to take the lead in the production of socially robust knowledge in both its research and teaching dimensions.' (Michael Gibbons, 2002)

Content

- Setting the context

- New models of engagement

- Examples of 'good practice'

- Concluding remarks

1. Setting the Context

Setting the Context (1)

1. Application of knowledge is acknowledged as being the source of social, economic and political power. Studies repeatedly show the strong correlation between educational attainment and the social and economic advantages for individuals and for society. This correlation is especially acute as countries respond to the GFC.

2. Globalisation is forcing change across all knowledge-intensive industries, creating a 'single world market'. Worldwide comparisons are becoming increasingly significant – as signified by the rise and obsession with global rankings. Knowledge production transcends national boundaries requiring membership of global networks.

3. At the same time, national boundaries are becoming porous, and in some context, less important. Mega regions – which often span national borders – are new globally competitive centres of economic activity via clustering;

Setting the Context (2)

4. Students are becoming more market savvy, and diverse, forcing HEIs to respond to diverse range of global, national, regional and local stakeholders and ensure value-for-money. The role and mission of HE is under the spot-light.

5. In response, governments are busy reshaping/restructuring HE systems and institutions to ensure they can better compete. The EU is doing likewise: U-Map, U-Multirank, EIT, ERC, FP8 will reframe the EHEA and ERA. At the same time, other nations are investing heavily in higher education and human capital.

4. Changes in the external environment, including new funding arrangements, are driving greater differentiation between elite and mass systems, between selecting and recruiting HEIs – challenging perceptions of the 'world order'.

2. New Models of Engagement

Changing Idea of the University

- Classical University: mission and role of higher education and academic research distinct from commercial activity;

- Land Grant University: focus on the teaching of agriculture, science, and engineering as a response to the industrial revolution, and changing social class rather than higher education's historic core of classical studies;

- American Graduate School: mission to train the next generation of scholar-researchers;

- Polytechnics and New Generation Universities: catering for wider range of socio-economic groups, learner groups and educational requirements;

- New Providers and HE Models: public and private, but also franchising, over-seas campuses, alliances/clusters – with joint and dual awards.
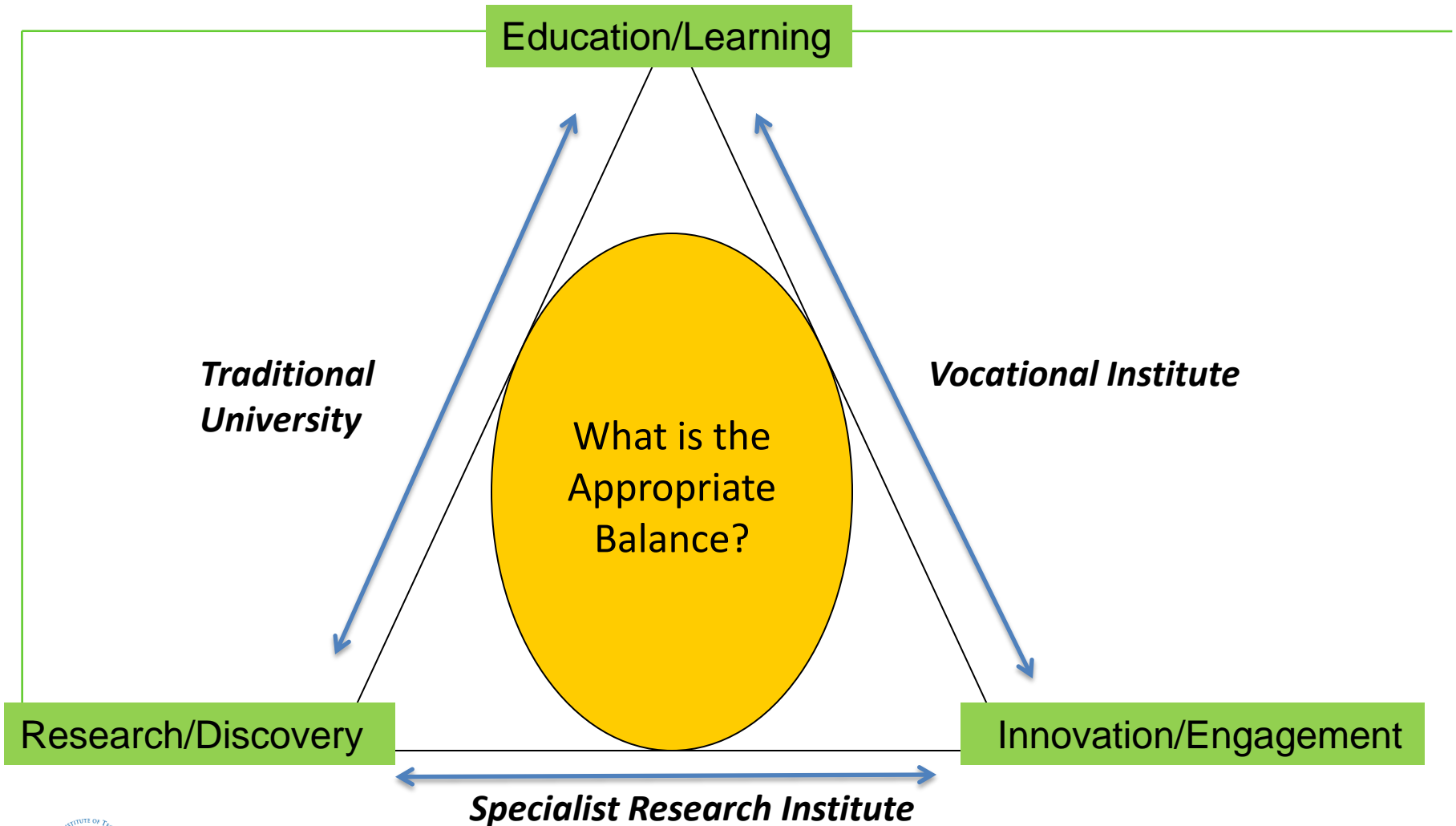
New Model of HEI

- HEIs traditionally reflected simplistic understanding of knowledge creation, different social classes, and skill/labour market requirements;

- Over time, boundaries have blurred, labour markets matured and professional/academic disciplines moved up the value chain;

- Today, this process is accelerating:
  - Traditional universities unable to meet all the demands and requirements of the global knowledge society;
  - Bologna and harmonisation of qualifications;
  - Basic vs. applied replaced with 'applied and not yet applied' (LERU, 2008, p9).

- Traditional boundaries replaced by differentiation by mission, e.g. civic, technological, classical or specialist.

- Research intensity is less significant as an indicator of an HEI's position than its excellence within a field of specialisation.

Engine of economy or part of Eco-system?

- Post-WW2 era of scientific discovery identified a gap between investment and output in terms of contribution to the national economy and society;

- This led to a linear understanding of innovation & engagement:

  - Academic knowledge production + innovation = economic growth;

  - Academic research + commercialisation = increased GNP/HE income.

- The GFC has amplified this link, with HE being viewed as a source of industrially valuable technical skills, innovations, and entrepreneurship;

- No doubt, this benefitted HE and underwrote substantial hikes in public expenditure - but the 'golden years' also led to simplistic assumptions.

- The Knowledge Triangle framework has the potential to broaden the conceptualisation of higher education, and to enable HE to demonstrate value beyond the 'ivory tower'.

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New Model of Higher Education

Education/Learning

Traditional University

Vocational Institute

What is the Appropriate Balance?

Research/Discovery

Innovation/Engagement

Specialist Research Institute

New Knowledge Providers

- Trend from simple to complex knowledge reflected in rise of new disciplines, methodologies and ways of thinking – and new HE models;

- Higher education is no longer the sole provider of new ideas or innovation; rather research is conducted increasingly through bi-lateral, inter-regional and global networks, with inter-locking innovation systems because complex problems require collaborative solutions.

  - Research-informed teaching and teaching-informed research

  - Teaching which uses real-life problems and issues

  - Research agenda derived/developed in tandem with end-users

  - Social, business and technological innovation

  - Knowledge exchange rather than knowledge transfer

  - 'Industrial partners' which includes public and NGO sectors
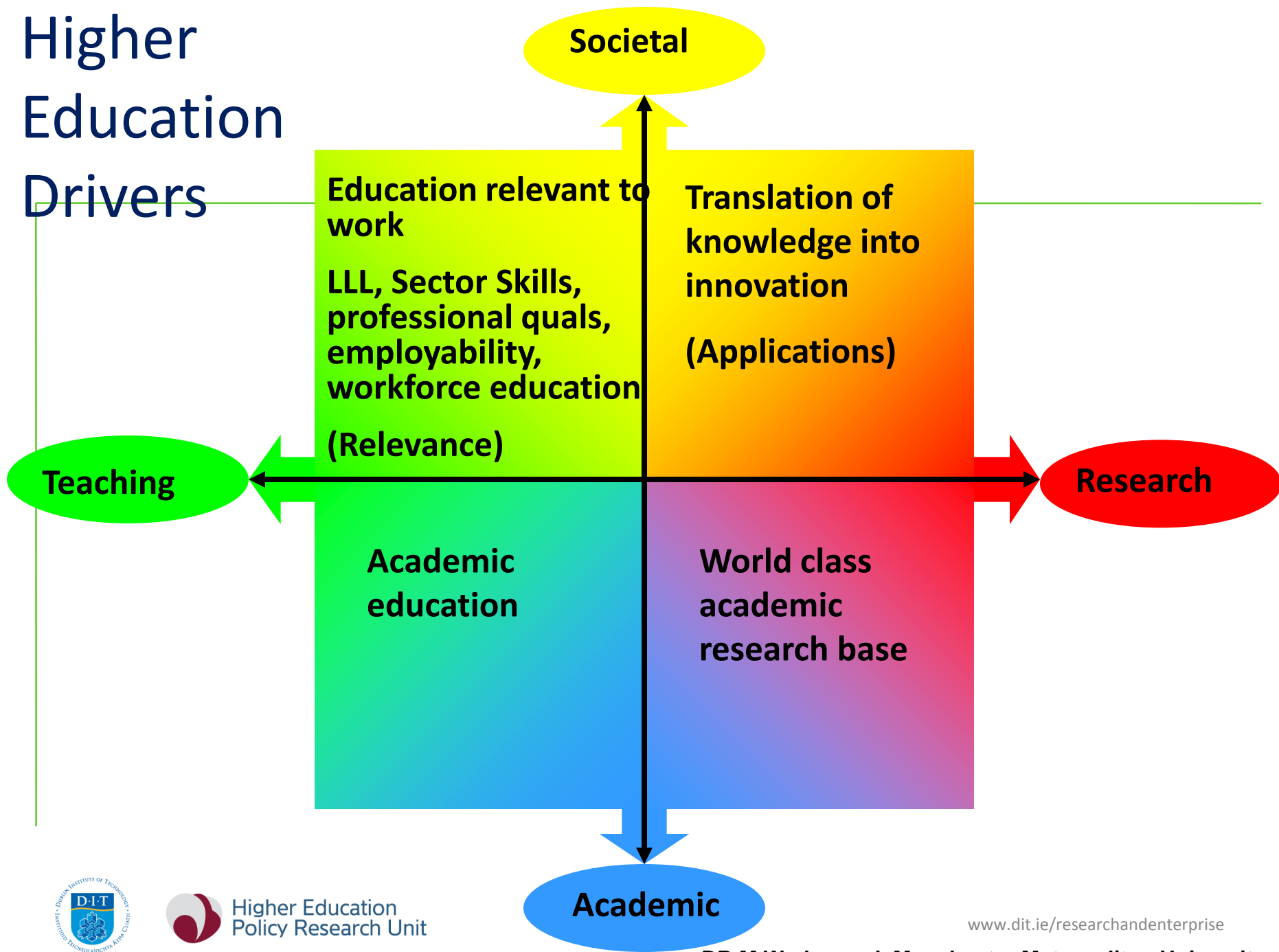
Implications for HE Organisation & Culture

- Valuing the impact and benefit of HE beyond the academy –
  - Mode 1: Achieves accountability and quality control via peer-review process;
  - Mode 2: Achieves accountability and quality control via social accountability and reflexivity.
- Implications for academic work: Boyer's 4 scholarships
  - Challenged assumption 'knowledge is generated in the university or college and then applied to external contexts with knowledge flowing in one direction, out of the academy' (O'Meara and Rice, 2005);
  - Shifted focus from individual faculty work – 'the work of individual scholars' - to the HEI providing the environment supporting faculty work (Ward, 2008);
    - If faculty to undertake 'scholarship of engagement,' then HEIs need to address deep transformation in institutional cultures to support the work of community engaged scholars;
    - Tension between how academic activity is valued and rewarded – and policy objectives.

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The Civic University (Goddard, 2009)

- Provides opportunities for the society of which it is part (individual learners, businesses, public institutions);

- Engages as a whole not piecemeal with its surroundings;

- Partners with other universities and colleges;

- Managed in a way that facilitates institution wide engagement with the city and region of which it is part;

- Operates on a global scale but uses its location to form its identity.

Each university/HEI positions itself strategically.

Higher Education Drivers

Societal

Education relevant to work

LLL, Sector Skills, professional quals, employability, workforce education

(Relevance)

Translation of knowledge into innovation

(Applications)

Teaching

Research

Academic education

World class academic research base

Academic

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Some agendas/ expectations of HE

Societal

Teaching

Research

Academic

Widening Participation/access

Sector Skills

Graduate Employability

Employer Engagement and HE Targets

Professional Quals

Life Long Learning

Workforce Development

Foundation degrees

Economic Growth

Business Competitiveness

Knowledge Transfer

IP exploitation/spinout companies

Regional Development and regeneration

Graduates

Post Graduates

Higher Education Targets

Learning programmes

Intellectual Capital

Academic Research

International research base

Discipline advancement

New knowledge

World Class Knowledge Base

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3. Examples of 'Good Practice'

Embedding Engagement

- Building on triple helix model of innovation, higher education is being asked to respond more directly to social and economic needs;

- Different programmatic models and initiatives are emerging which bring together actors from civil society, the state and state agencies, and higher education to mobilize and harness knowledge, talent and investment in order to address a diverse range of problems and need through co-ordinated action.

- Sustained, embedded and reciprocal engagement is defined as learning beyond the campus walls, discovery which is useful beyond the academic community and service that directly benefits the public.

- New boundary crossing organisations and structures are being developed to help negotiate the pathways and different cultures.

Integrating the Knowledge Triangle

- Teaching/Learning — Research/Discovery

- Teaching/Learning — Engagement/Innovation

- Research/Discovery — Engagement/Innovation

- Research-informed teaching utilises real life research projects in the classroom, and galvanising the breadth of university expertise to help solve the complex, comprehensive, and interconnected problems of the city/region.

- Students work on projects with real clients, applying their specialist subject skills, and receiving course credits for their work. The community becomes part of the teaching process and benefits from the students' work.

- . Focus on problem-solving, use-inspired research which makes a real impact on people's life experience.

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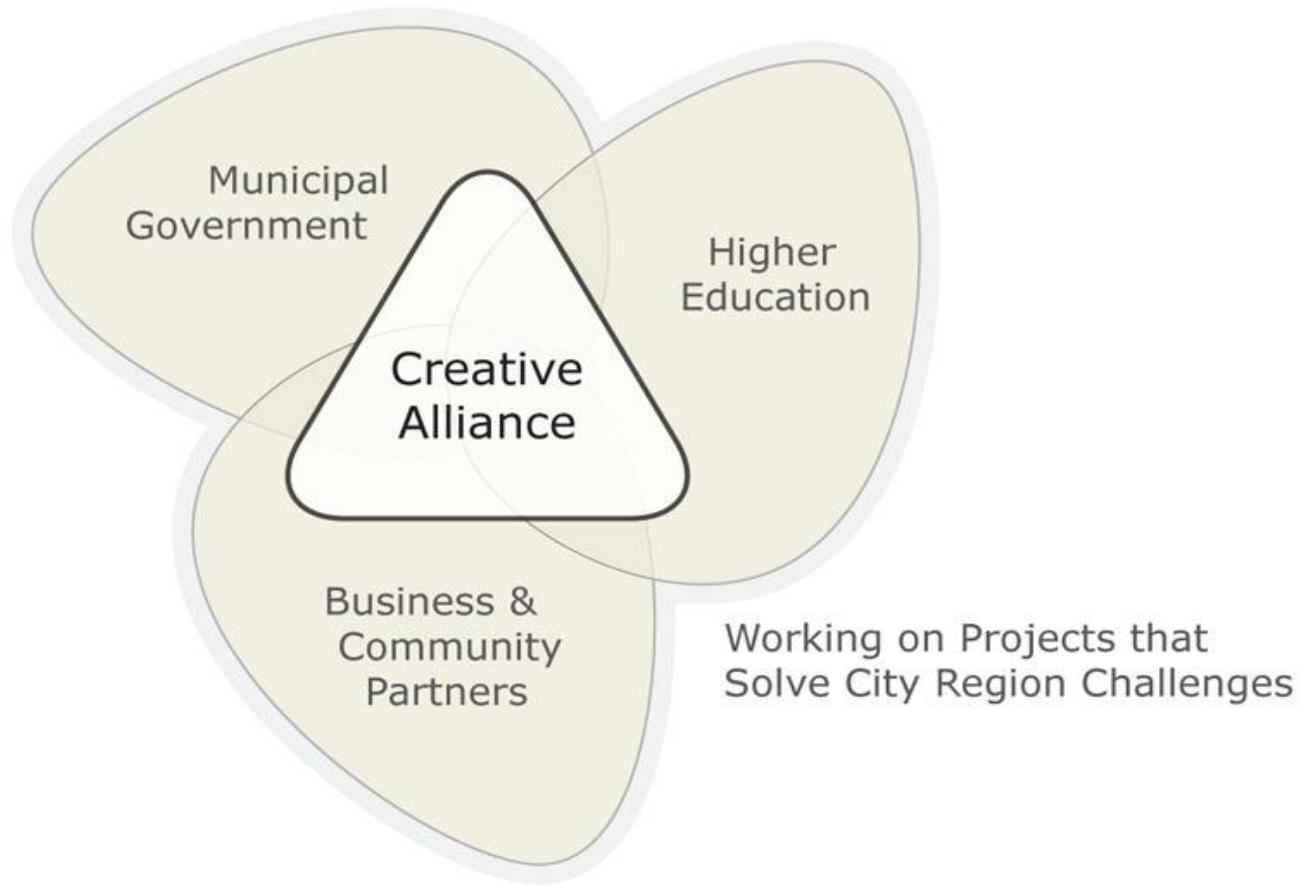Higher Education
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Leveraging Place

Arizona State University: 'Eight design aspirations for a New American University'

- Inspire our every activity

- Leverage our place

- Transform society

- Value enterpreneurship

- Conduct use-inspired research

- Enable student success

- Fuse intellectual disciplines]

- Be socially embedded

- Engage globally

'Think & Do' Networks

- Premised on view that as economic activity has gone global, cities now compete on global terrain for talent and investment.

- **Dublin Creative Alliance** (2008) collaboration between 4 x HEIs, municipal authorities, State Agencies, Business and the Not-for-Profit sector;

- Similar initiatives: World Class Cities Partnership Initiative, the Open Cities Initiatives, and the OECD Higher Education in Cities and Regions project.

- Initiatives include:

  - *Innovation Dublin*: showcasing innovation and creativity in Dublin;

  - *Economic Action Plan* that includes City Indicators to benchmark performance internationally prioritising the actions agreed in the plan;

  - *UniverCities*: alignment of teaching and research programmes of universities with the challenges of managing and planning for the future of the City;

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Rethinking The Triple Helix

Municipal Government

Higher Education

Creative Alliance

Business & Community Partners

Working on Projects that Solve City Region Challenges

Environmental Health Sciences Institute

- Triangular partnership between DIT, largest municipal authority and national health service.

- Co-locate scientists, technologists, social scientists, city planners, policy-makers and public health/environmental health professionals to:

  - Inform environmental health policy, planning, decision making;

  - Develop practical solutions to environmental health problems;

  - Study the impact on the health of vulnerable populations and facilitate investments to reduce the burden of chronic disease and injuries.

User Centred Research Process

Proposal Evaluation
Selection Funding

Proposals

Researchers

Policy and Research Menu

Users

Policy Framers

Professionals

Execution

Road Map

Testing, Reporting and Evaluation

Exploitation of Results

New Products and Services
New Policies
New Organisational Structures and Ways of Working
Commercialisation

Aalto University: Innovation Factory

Design Factory, Media Factory and Service Factory: workshops for novel expertise

- Combine expertise of different schools in product development, media and services;

- Designed to facilitate new forms of collaboration in an environment where academic teams, researchers and students work together with companies and communities;

- Teaching and learning are an important part of the activities – the new knowledge produced by research is smoothly transferred to teaching

Carnegie Classification: Engagement

Community Engagement Elective Classification: collaboration between HEIs and their larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity.

- Curricular Engagement: teaching, learning and scholarship to address community-identified needs, deepen students' civic and academic learning, enhance community well-being, and enrich the scholarship of the institution.

- Outreach & Partnerships: focuses on the application and provision of institutional resources for community use with benefits to both campus and community.

Community Partnerships

- Portal coordinating community-based research where students conduct the research as part of their curriculum.

  - *DIT: Students Learning With Communities* uses Science Shop concept to match students (undergraduate and postgraduate) with real-life research topics, emanating from the community, that relate to their studies;

  - U Pennsylvania: Netter Center for Community Partnerships:
    - Academically Based Community Service:
    - Is service rooted in and intrinsically linked to teaching and research.
    - Focuses on problem-oriented research and teaching.
    - Promotes learning through service.
    - Emphasizes student and faculty reflection on the service experience.
    - Fosters structural community improvement including effective public schools, neighborhood development, and community organizations.

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# 4. Concluding remarks

Responding to the Crisis

Key trends:

- Increasing emphasis on social responsibility and public accountability of HE and the academic profession:

  - Political and societal support for HE, for systems dependent upon public funding and on tuition fees, can only be maintained by quality profiling, performance enhancement and value-for-money;

  - HE has been poor explaining the importance , value and benefit of the university to society;

- Greater diversity of learners & stakeholders – alongside realisation that labour-market needs will require continual learning and knowledge exchange;

- Battle for world class excellence is intensifying at a time of fiscal crisis and rising costs.

Reconfiguring the University

- The university can be a important connecting site for society – but it needs to engage directly and pro-actively rather than sitting on the sidelines (Delanty, 2001);

- Universities can make a multifaceted contribution to the economy, as a source of knowledge and skilled employees, and as the centre for regional economic clusters (NESTA, 2009);

  - New kinds of university structures, boundary crossing organisations, that promote and embed partnerships with the community, industry and government;

- Leverage attributes of mission and place to differentiate (J Goddard, 2010)

  - City and region as a resource;

  - Balance public (social) and private (the university) good;

  - Identify major societal challenges that can focus academic community.

- Challenge to connect up the three sides of the Knowledge Triangle.

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Diverse Research Output/Impact
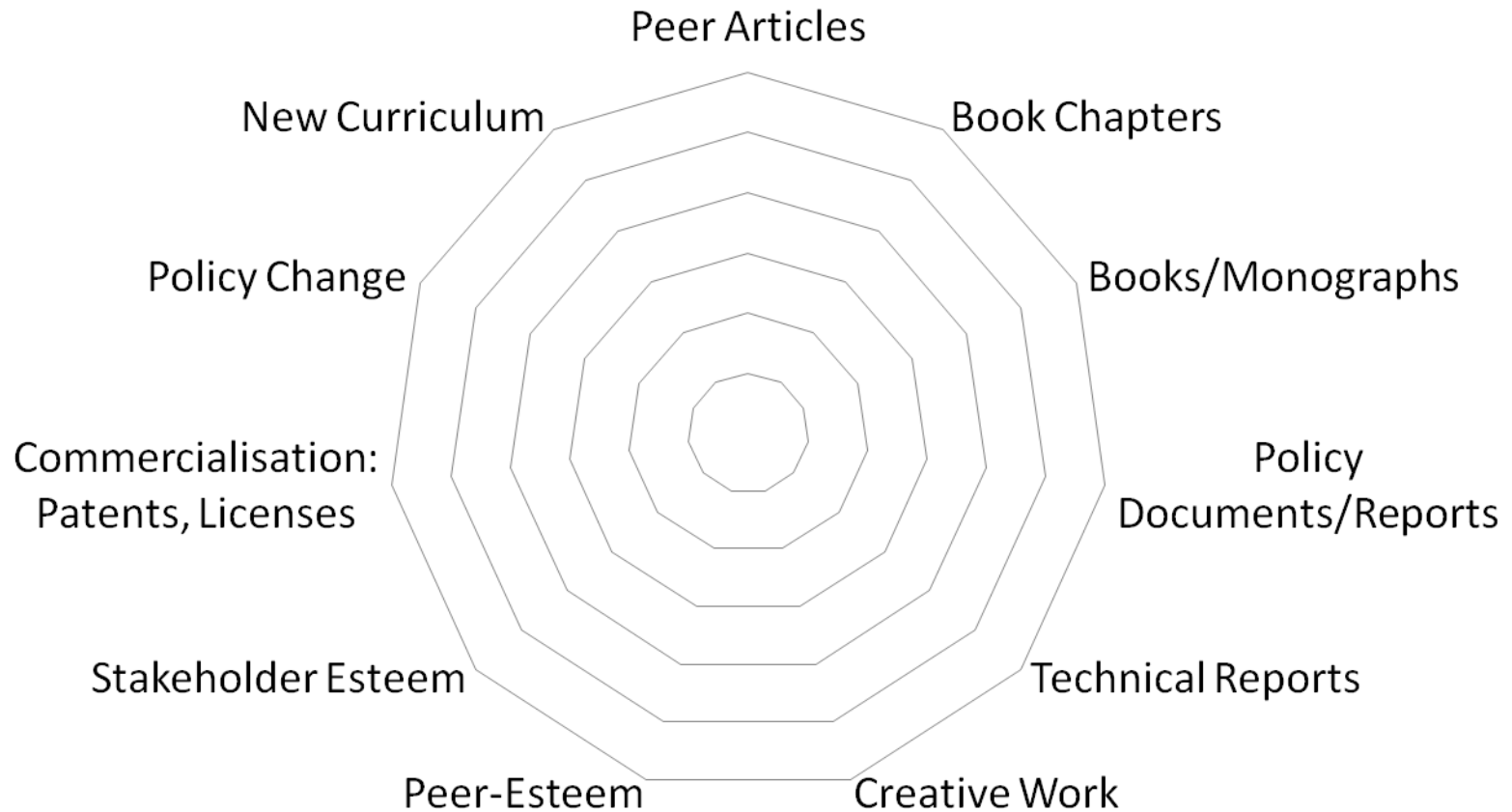
RAM for the Knowledge Triangle?

- If the various components of the Knowledge Triangle are considered important for institutional mission, then the resource allocation model (RAM) should reflect, incentivise and reward such activity;

- Units should be expected to have a scope of provision/activity which reflects the Knowledge Triangle: education/teaching, discovery/research and engagement/innovation – relevant to the academic discipline;

- Resources should be allocated on the basis of meeting thresholds in at least 2 of these areas (e.g. 40% + 40% + 20%);

- Variations of this RAM work at the individual, institutional and system level.

Education/Teaching Indicators, e.g.

Number of undergraduate/postgraduate (taught) programmes

New pedagogical models, CPD, work-based learning, on-line modules,

Number international, mature, low SES students;

Graduate/completion rates per programme

Employability of graduates

Evidence of internationalization, e.g. involvement in international teaching partnerships

Impact of Research on Teaching

**Discovery/Research Indicators , e.g.** (over the previous 5 years)

Publications, policy/technical reports, books, chapters, etc. published

Number of postdoctoral grants, prestigious national/international prizes won

Number and percentage Research Active Staff, Research income per school

PhD programmes, number research students, PhD completions – work-based PhDs,

Evidence of internationalization, e.g. involvement in international research partnerships

Evidence of school contribution to research environment/culture, e.g. funding, seminar series,

Fulbright or other visiting fellowships, etc.

Engagement/Innovation Indicators, e.g. (over the previous 5 years;

Hosting of international conferences, International-level exhibitions/performances

Number of Patents and Licences, spin-outs

Membership of national and international professional and civic organisations

Income from external-commissioned or contracted work.

Evidence of End-User Esteem, e.g. policy, technical or commissioned reports; consultancy and external contracts; prototypes, architectural or design awards; etc.

Examples of knowledge exchange (verifiable)

Evidence of social and economic impact and benefit (verifiable)

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Research and Academic Staff Commitment Agreement (CA)

•Commitment of the R&A Staff is considered as a whole, but flexibility is the key factor to achieve the individual and collective goals.

• University needs different profiles of R&A Staff

• Dedication to the three basic university activities is not necessary the same for all the R&A staff at a given time or for a given professor in different moments of his career.
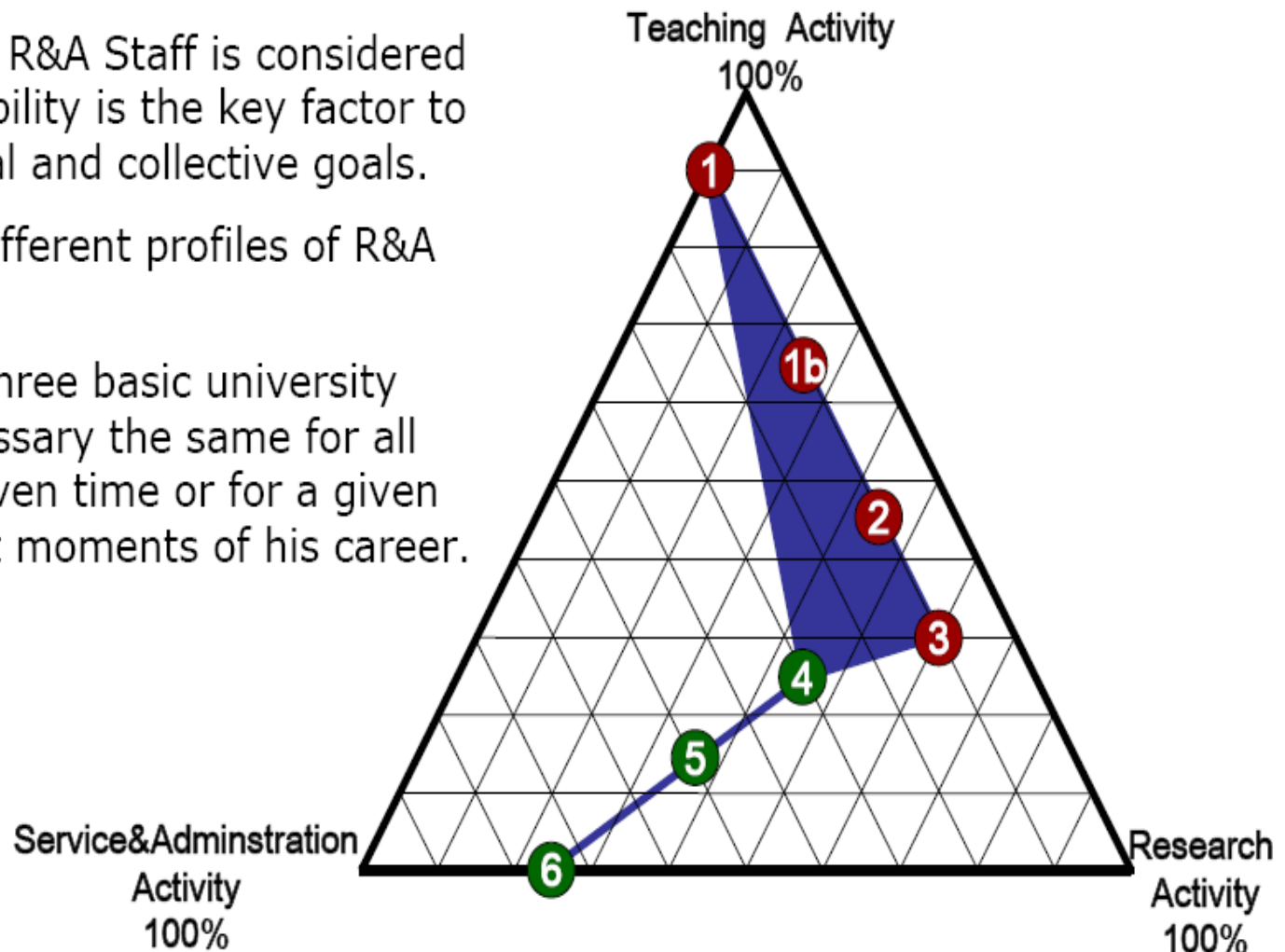
Scholarship in Public

- Define public scholarly and creative work.

- Develop policy based on a continuum of scholarship.

- Recognize the excellence of work that connects domains of knowledge.

- Expand what counts.

- Document what counts.

- Present what counts: use portfolios.

- Expand who counts: Broaden the community of peer review.

- Support publicly engaged graduate students and junior faculty.

- Build in flexibility at the point of hire.

- Promote public scholars to full professor.

- Organize the department for policy change.

Source: *Scholarship in Public: Knowledge Creation and Tenure Policy in the Engaged University*

Impact and Benefit

- ***Economic Benefits***, e.g. improved productivity; adding to economic growth and wealth creation; enhancing the skills base; increased employment; as well as unquantifiable returns resulting from social/policy adjustments.

- ***Social Benefits***, e.g. improving people's health and quality of life; stimulating new approaches to social issues; changes in community attitudes; influence upon developments or questions in society at large; informed public debate and improved policy-making;

- ***Environmental Benefits***, e.g**.** improvements in environment and lifestyle; reduced waste and pollution; improved management of natural resources; reduced consumption of fossil fuels; and adaptation to climate change;

- ***Cultural Benefits****, e.g.* supporting greater understanding of where we have come from, and who and what we are as a nation and society; contributing to cultural preservation and enrichment; and bringing new ideas and new modes of experience to the nation.

A Challenge for Universities

- Take the lead in socially-robust knowledge in the same way older universities dominate disciplinary research;

- Create competitive and distinctive advantage by building critical mass in key fields of research-informed teaching and use-inspired research – which is socially and regionally engaged and globally embedded;

- Build collaborative knowledge clusters with other institutions and the wider community that occupy the distributed knowledge production system;

- Broaden definition of academic activity to embrace breadth of Knowledge Triangle, including recognition of research 'beyond the academy';

- Align policy with assessment and recruitment practices, by developing appropriate incentive and reward systems to support and incentivize the production of socially robust research.

Higher Education Policy Research Unit (HEPRU)
Dublin Institute of Technology

ellen.hazelkorn@dit.ie
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